

VIII.4.3A FORECAST COMPONENT OPERATION USER DOCUMENTATION

The user documentation for the Operation is in Section V.3.3 and should include the following:

Name of Operation: Give the name that is generally used when describing the Operation. Examples are Sacramento soil moisture accounting, unit hydrograph.

Identifier: Give the 8-character identifier used to identify the Operation. This identifier appears on the card just preceding the input cards for the Operation. This identifier must be unique and cannot contain imbedded blanks.

Application: Indicate whether the Operation can be used in both Operational Forecast System and Calibration System programs or only in one or the other.

Description: Describe what the Operation does.

Operations that are models or other involved procedures should be described in detail in Part II.

Operations that are not described in Part II or in another easy-to-obtain reference should be described in detail in this section. References to material not in the User's Manual should be listed immediately after the description.

Developed By: Give the name of the developer of the Operation.

Allowable Data Time Intervals: List the computational time intervals that can be used when executing the Operation. The computational time interval is the minimum period for which the Operation can be executed. Computational time intervals of 1, 2, 3, 4, 6, 8, 12 and 24 hours are allowable in NWSRFS. The data time interval may be divided in the Operation into as many increments as are needed to do the computations. The computational time interval generally corresponds to the data time interval of the input and output time series for the Operation.

Time Series Used: Describe the time series data that are used by the Operation. For each time series, the following information should be given:

1. General type - i.e., precipitation or rain + melt, channel inflow or runoff, instantaneous discharge; if only specific data types are allowed, list the data types

2. Dimensions - the dimension that the time series data must have like length (L), volume (L3) (see Chapter I.10)
3. Units - the units that the time series must have; these must be the same as the internal units used by the forecast component, e.g., MM, CMS (see Section V.2.2)
4. Use - indicate whether the time series is used for input, output or both
5. Required - indicate whether the time series is required for the Operation or is optional; indicate by yes or no
6. Form of output time series - only applies to output time series for the Operation; indicate whether the Operation replaces the values with new values (i.e., form is B=A) or is additive (i.e., adds to the existing values in the time series; form is B=B+A)
7. Data time interval - indicate the data time intervals that are allowed
8. Missing data allowed - indicate whether the time series can contain missing data values; indicate by yes or no

The information about the time series used by the Operation should be displayed in table form as follows:

<u>General Type</u>	<u>Dimn</u>	<u>Units</u>	<u>Use</u>	<u>Required</u>	<u>Form of Output T.S.</u>	<u>Data Time Interval</u>	<u>Missing Values Allowed</u>
Precipitation (rain + melt)	L	MM	I	yes	n/a	any	no
Channel inflow (runoff)	L	MM	O	yes	replaces	any <u>1/</u>	no

1/ Must be the same as the time interval for rain plus melt data.

Input Summary: Describe the format and contents of the cards read by the input subroutine (PINn) for the Operation. The input summary should be displayed in the following form:

<u>Card</u>	<u>Format</u>	<u>Columns</u>	<u>Contents</u>
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The information that is required should clearly be distinguished from optional input. The input summary should be complete and self explanatory.

Sample Input and Output: Include sample input cards for the input subroutine for the Operation and a sample output generated by the subroutines that print parameters and carryover. The sample input and information displays should be presented as a figure on a

separate page from the text. The text should contain a reference to the figure and comments on the contents of the examples.

Describe what printer output can be produced by the Operation during execution. Indicate if no printer output is generated. All Operations with printer output should contain the option not to produce any output. Comments relative to the criteria to use in deciding among options would be helpful in many cases.

Error and Warning Messages: Include a list of all error and warning messages that are included in the various subroutines associated with the Operation. After each message, give additional information which might help the user understand what went wrong. The more self-explanatory the messages are, the greater the chance the user can solve the problem without having to call for help. The messages should be grouped according to whether they occur during setup, execution, carryover transfer or card punching.

Error messages that appear in subroutines like CHEKTS and CHECKP that are used by the Operation should not be included. Only messages that pertain specifically to the Operation need be included.

Carryover Transfer Rules: Describe what rules are followed in the carryover transfer subroutine associated with the Operation. If the Operation has no carryover associated with it, indicate that the Operation has no carryover.

Punched Card Limitations: Describe any differences that could exist between the original card input for the Operation and the values on the cards generated by the punch card subroutine.